

CLAIMS

We Claim:

- 1 1. A computer network comprising:
 - 2 a plurality of machines further comprising a first machine, a second machine,
 - 3 and a third machine;
 - 4 communication resources for communicating between and coupled to the
 - 5 machines of the plurality of machines, the communication resources further
 - 6 comprising a switch;
 - 7 a first storage system coupled to the first machine, the first storage system
 - 8 containing a first portion of a metadata registry;
 - 9 a second storage system coupled to the second machine, the second storage
 - 10 system containing a second portion of the metadata registry, and wherein the second
 - 11 portion of the metadata registry is permitted to overlap the first portion of the
 - 12 metadata registry;
 - 13 wherein the third machine contains a local copy of part of the metadata
 - 14 registry;
 - 15 wherein a command object of the metadata registry comprises network address
 - 16 information about at least some of the machines of the computer network that
 - 17 participate in a first communication between said machines;
 - 18 and wherein an agent monitors additional communications between the
 - 19 machines of the computer network for communications relevant to the command
 - 20 object, the agent being configured to modify the command object by adding thereto
 - 21 network address information of additional machines of the computer network that
 - 22 should participate in the first communication between said machines to maintain
 - 23 coherency of the metadata registry.
- 1 2. The computer network of Claim 1, wherein the agent resides on the switch.
- 1 3. The computer network of Claim 1, wherein the agent resides on the second
- 2 machine.

- 1 4. The computer network of Claim 1,
2 wherein the metadata registry further comprises resource information of at
3 least some available storage resources coupled to machines of the network, the
4 resource information comprising capacity and latency information for at least two
5 devices and network interface bandwidth information of the machines to which the
6 available storage resources are coupled.
- 1 5. The network of Claim 4, wherein the command object further comprises a
2 quality-of-service object comprising a desired capacity, latency, and bandwidth,
3 wherein an allocator selects a resource of the available storage resources according to
4 criteria comprising the desired capacity, latency, and bandwidth of the quality-of-
5 service object and the resource information of the metadata registry.
- 1 6. The network of Claim 5, wherein the metadata registry further comprises
2 network topology information, the quality-of-service object comprises desired
3 network hop information, and wherein in selecting a resource the allocator considers
4 criteria further comprising the desired network hop information and the network
5 topology information.
- 1 7. The network of Claim 6, wherein the metadata registry further comprises
2 network load information, and wherein in selecting a resource the allocator considers
3 criteria further comprising the network load information.
- 1 8. The network of Claim 6, wherein the metadata registry further comprises
2 information of processing resources of the network, wherein the quality-of-service
3 object further comprises desired processing resources, and wherein in selecting a
4 resource the allocator considers criteria further comprising the desired processing
5 resources of the quality-of-service object.
- 1 9. The network of Claim 8, wherein the command object is initially created by
2 the third machine, wherein first communication involves communication of data to
3 the second machine, and wherein the command object comprises code for execution
4 on the second machine during execution of the command object.
- 1 10. The network of Claim 7, further comprising a load balancer.

1 11. A computer system for operation in a network, the system comprising a
2 storage system, a network interface, and a processor; the system containing a local
3 copy of a portion of a distributed metadata registry, and an agent for monitoring
4 communications between machines of the computer network and the compute system
5 for communications relevant to a command object of the metadata registry, the agent
6 being configured to modify the command object by adding thereto network address
7 information of machines of the computer network that should participate in a
8 communication affecting the metadata registry to maintain coherency of the metadata
9 registry.

1 12. The computer system of Claim 11, wherein the command object further
2 comprises a quality-of-service object comprising a desired capacity, latency, and
3 bandwidth, wherein the computer system comprises an allocator that selects a resource
4 of the storage system according to criteria comprising the desired capacity, latency,
5 and bandwidth of the quality-of-service object and available resource information of
6 the metadata registry.